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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,037	07/23/2001	Jan Louis Josephina Servaes	Q65151	2356
7590	08/25/2004		EXAMINER	
SUGHRUE MION ZINN MACPEAK & SEAS, PLLC 2100 Pennsylvania Avenue, NW Washington, DC 20037-3213			BRINEY III, WALTER F	
			ART UNIT	PAPER NUMBER
			2644	

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/910,037	SERVAES ET AL.
	Examiner	Art Unit
	Walter F Briney III	2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 23 July 2001.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-4, 11 and 12 is/are rejected.
- 7) Claim(s) 5-10 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 23 July 2001 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 23 July 2001.
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Sinberg (US Patent 5,038,375).

Claim 1 is limited to a **broadband line driver**. Sinberg discloses a telephonic line-driving amplifier (figure 6, element A1) (i.e. **an amplifying device**). Figure 6 clearly depicts that the amplifier includes both **an input** and **an output**. Also included is an isolating transformer (i.e. **a transforming device**) coupled to the output of the amplifier and forming a current path from the output to ground (i.e. **coupled in series with the output of the amplifying device**). Furthermore, figure 6 depicts that the transformer is part of a feedback loop to the input of the amplifier (i.e.

CHARACTERISED IN THAT the transforming device is located in a feedback loop that couples the output of the amplifying device to the input of the amplifying device). Therefore, Sinberg anticipates all limitations of the claim.

Claim 3 is limited to **the broadband line driver according to claim 1**, as covered by Sinberg. As depicted in figure 6, Sinberg discloses feedback amplifiers A2 and A3 and resistors R₄, R₆, R₈, and R₁₀ that form a feedback path from the output of the isolating transformer back to the input of the line-driving amplifier (A1) (i.e. **wherein a feedback circuit is connected between an output of the transforming device and the input of the amplifying device**). Therefore, Sinberg anticipates all limitations of the claim.

Claim 4 is limited to **the broadband driver according to claim 3**, as covered by Sinberg. As discussed in claim 3, the feedback path includes resistors (figure 6, R₄, R₆, R₈, R₁₀) (i.e. **wherein the feedback circuit comprises resistors**). Therefore, Sinberg anticipates all limitations of the claim.

Claims 1, 3, 4, and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Bingel (US Patent 6,198,818).

Claim 1 is limited to **a broadband line driver**. Bingel discloses a telephonic line-driving amplifier (figure 4, element 58) (i.e. **an amplifying device**). Figure 4 clearly depicts that the amplifier includes both **an input and an output**. Also included is an isolating transformer (17) (i.e. **a transforming device**) coupled to the output of the amplifier and forming a current path from the output to ground (i.e. **coupled in series with the output of the amplifying device**). Furthermore, figure 4 depicts that the transformer is part of a feedback loop to the input of the amplifier (i.e. **CHARACTERISED IN THAT the transforming device is located in a feedback loop**

that couples the output of the amplifying device to the input of the amplifying device). Therefore, Bingel anticipates all limitations of the claim.

Claim 3 is limited to **the broadband line driver according to claim 1**, as covered by Bingel. As depicted in figure 4, Bingel discloses feedback amplifiers 41, 44, 46, 48, and 50 and a plurality of resistors that form a feedback path from the output of the isolating transformer back to the input of the line-driving amplifier (58) (i.e. **wherein a feedback circuit is connected between an output of the transforming device and the input of the amplifying device**). Therefore, Bingel anticipates all limitations of the claim.

Claim 4 is limited to **the broadband driver according to claim 3**, as covered by Bingel. As discussed in claim 3, the feedback path includes resistors (figure 4, included variously throughout feedback stages 1-4) (i.e. **wherein the feedback circuit comprises resistors**). Therefore, Bingel anticipates all limitations of the claim.

Claim 11 is limited to **a digital subscriber line analogue front end comprising a broadband line driver according to claim 1**. Claim 1 has been shown to be anticipated by Bingel. Bingel discloses that the line-driving amplifier depicted is part of a digital subscriber line analogue front end (abstract; column 3, lines 26-54). Therefore, Bingel anticipates all limitations of the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sinberg in view of Steffes et al. (Electronic Design article, 19 April 1999).

Claim 2 is limited to **the broadband line driver according to claim 1, as covered by Sinberg**. Sinberg discloses an isolating transformer coupled to the output of a line-driving amplifier, however, the design parameters of the driver and transformer are not disclosed. Therefore, Sinberg anticipates all limitations of the claim with the exception that **the transforming device has a transformation ratio which is higher than 1:2**. Steffes teaches that line-driver design that includes isolation transformers requires winding ratio choice early on and as an integral step toward the entire design process, and that higher winding ratios (see table, includes turns ratios of 2.5, 3, 3.5, and 4) (i.e. **higher than 1:2**) allow lower voltage components to be used in the line driver, which results in higher integration of components, which reduces manufacturing costs. As part of a design tradeoff it would have been obvious to one of ordinary skill in the art to select a turns ratio higher than 1:2 as taught by Steffes so that a lower supply voltage would be necessitated, the lower supply voltage requiring lower voltage components, whose small size increases integration allowing more components to be packaged into small areas.

Claim 12 is limited to **a method of operating a broadband line driver comprising an amplifying device**. Sinberg discloses a telephonic line-driving amplifier (figure 6, element A1). Figure 6 depicts that the output is transformed by an

isolation transformer and fed back into the input of the amplifier. However, Sinberg does not disclose the design parameters of the driver and transformer. Therefore, Sinberg anticipates all limitations of the claim with the exception of **transforming the output voltage of the amplifying device to a higher value**. Steffes teaches increasing the turns ratio above 1:1 (see table) of an isolation transformer used in line driving applications to lower the power and voltage source requirements. By lowering the power source requirements (up to a ratio of 1.8) (page 56, column 3) less heat and noise effects take hold of the amplifier, and lowering the supply voltage (up to a ratio of about 3) (see table) reduces the size of the components needed, thus increasing integration. As part of the line-driver design tradeoff it would have been obvious to one of ordinary skill in the art at the time of the invention to use an isolation transformer with a winding ratio greater than 1:1 as taught by Steffes for the purpose of reducing power and voltage source requirements thereby reducing heat and noise effects while increasing the amount of integration possible.

Allowable Subject Matter

Claims 5-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 5 is limited to **the broadband line driver according to claim 1**, as covered by Sinberg. Sinberg discloses a line-driving amplifier with an isolating transformer (abstract; figure 6). As can be seen from the figure, the amplifier includes a

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single-ended input to its negative terminal. The amplifier's output is coupled to one terminal of the isolating transformer. There is even a feedback path with resistors connected to other side of an impedance matching resistor (R_{S1}). However, Sinberg only discloses this single-ended system. Therefore, Sinberg anticipates all limitations of the claim with the exception of **a second input terminal and a second output terminal**. Therefore, claim 5 is allowable over Sinberg.

Claims 6-10 depend from claim 5, and thus, are allowable over Sinberg for at least the same reasons.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F Briney III whose telephone number is 703-305-0347. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WFB

8/18/04



XU MEI
PRIMARY EXAMINER